AGENDA

15 MIN	Learning Outcomes + Introduction
	Practice Notebook
5 MIN	Checkout Form

AfterWork

LEARNING OUTCOMES

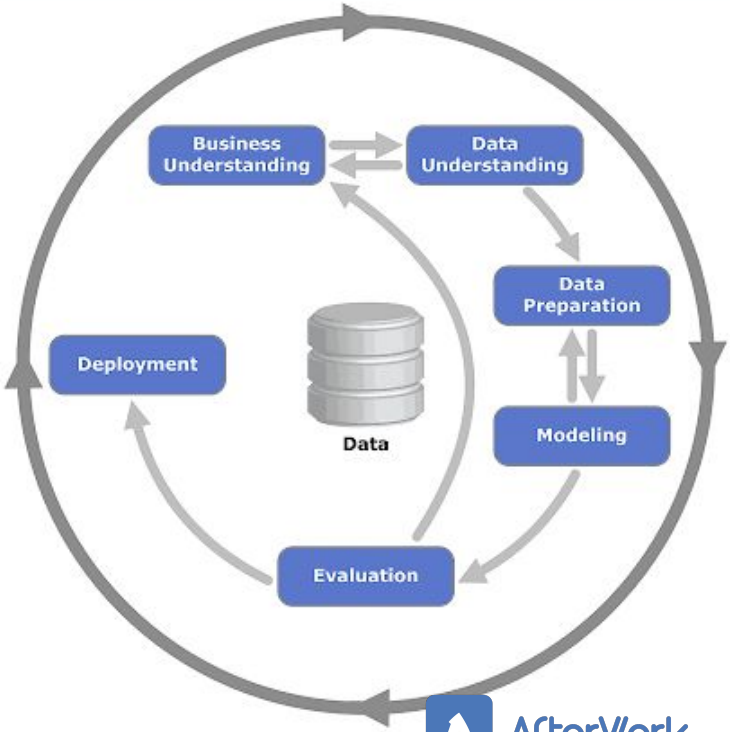
- I can perform **ranking** while selecting records in a dataset.
- I can **filter for records** from a dataset through the use of conditions.
- I can perform **sorting** in ascending and descending order while selecting records from a dataset.
- I can perform **descriptive analysis** using aggregate functions.
- I can create **summary tables** using group by and pivot_table functions.
- I can **develop evidence-based conclusions** and **recommendations** from my analysis.

OVERVIEW

- **Data Analysis**
  - Data analytics is used in business organizations make better busine decisions.
  - The process of data analysis uses analytical and logical reasoning tc information from the data.

- **Types of Data Analysis**
  - Descriptive Analysis
  - Diagnostic Analysis
  - Predictive Analysis
  - Prescriptive Analysis

CRISP-DM



AfterWork

Data Analysis with Python

OVERVIEW

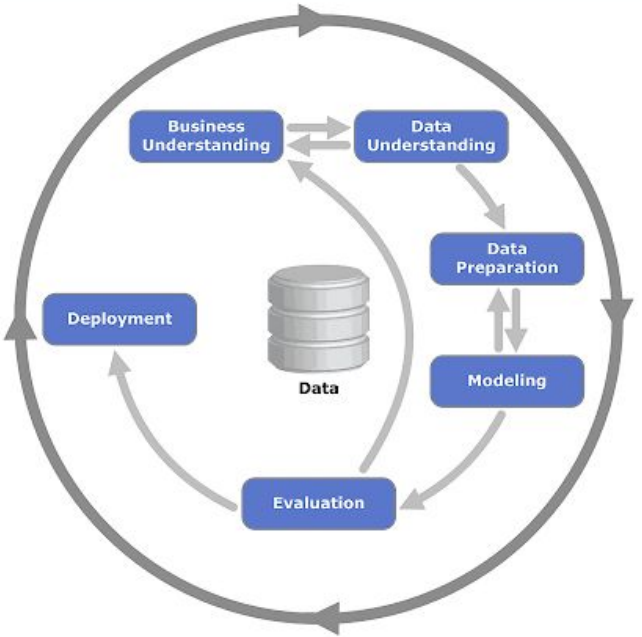
- **Descriptive Analysis**
  - Descriptive data analysis looks at past data and tells what happened. This is often used when tracking Key Performance Indicators (KPIs), revenue, sales leads, and more.
- **Diagnostic Analysis**
  - Diagnostic data analysis aims to determine why something happened. Once your descriptive analysis shows that something negative or positive happened, diagnostic analysis can be done to figure out the reason.
- **Predictive Analysis**
  - Predictive data analysis predicts what is likely to happen in the future. In this type of research, trends are derived from past data which are then used to form predictions about the future.
- **Prescriptive Analysis**
  - Prescriptive data analysis combines the information found from the previous 3 types of data analysis and forms a plan of action for the organization to face the issue or decision.

OVERVIEW

- **Descriptive Analysis**
  - This type of analysis looks at past data and tells what happened.
  - This is often used when tracking Key Performance Indicators (KPIs), revenue, sales leads, and more.

- **Data Analysis Techniques**
  - Selecting Records
  - Ranking
  - Sorting
  - Aggregate functions
  - Grouping
  - Pivot Tables

CRISP-DM



Data Analysis with Python

AfterWork

EXAMPLE: Performing Data Analysis

	SepalLength	SepalWidth	PetalLength	PetalWidth	Name
0	5.1	3.5	1.4	0.2	setosa
1	4.9	3.0	1.4	0.2	setosa
2	4.7	3.2	1.3	0.2	setosa
3	4.6	3.1	1.5	0.2	setosa
4	5.0	3.6	1.4	0.2	setosa

```
array(['setosa', 'versicolor', 'virginica'], dtype=object)
```

EXAMPLE: Descriptive Statistics

	SepalLength	SepalWidth	PetalLength	PetalWidth
count	150.000000	150.000000	150.000000	150.000000
mean	5.843333	3.054000	3.758667	1.198667
std	0.828066	0.433594	1.764420	0.763161
min	4.300000	2.000000	1.000000	0.100000
25%	5.100000	2.800000	1.600000	0.300000
50%	5.800000	3.000000	4.350000	1.300000
75%	6.400000	3.300000	5.100000	1.800000
max	7.900000	4.400000	6.900000	2.500000

EXAMPLE: Selecting & Creating New Columns

	SepalLength	SepalWidth	PetalLength	PetalWidth	Name	SepalLength_Size
0	5.1	3.5	1.4	0.2	setosa	High
1	4.9	3.0	1.4	0.2	setosa	Low
2	4.7	3.2	1.3	0.2	setosa	Low
3	4.6	3.1	1.5	0.2	setosa	Low
4	5.0	3.6	1.4	0.2	setosa	High

EXAMPLE: Grouping & Pivot tables

SepalLength_Size	High	Low
Name		
setosa	30	20
versicolor	49	1
virginica	49	1

SepalLength_Size	High	Low
Name		
setosa	5.230000	4.67
versicolor	5.957143	4.90
virginica	6.622449	4.90

EXAMPLE: Sorting

	SepalLength	SepalWidth	PetalLength	PetalWidth	Name	SepalLength_Size
13	4.3	3.0	1.1	0.1	setosa	Low
42	4.4	3.2	1.3	0.2	setosa	Low
38	4.4	3.0	1.3	0.2	setosa	Low
8	4.4	2.9	1.4	0.2	setosa	Low
41	4.5	2.3	1.3	0.3	setosa	Low